



# UNITED STATES PATENT AND TRADEMARK OFFICE

*[Handwritten signature]*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,423	01/16/2004	Chih-Yu Chao	4006-281	5650

22429 7590 05/04/2005

LOWE HAUPTMAN GILMAN AND BERNER, LLP  
1700 DIAGONAL ROAD  
SUITE 300 /310  
ALEXANDRIA, VA 22314

EXAMINER
----------

VU, PHU

ART UNIT	PAPER NUMBER
----------	--------------

2871

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/758,423	<b>Applicant(s)</b> CHAO ET AL.	
	<b>Examiner</b> Phu Vu	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 2, 5, 6, 9, 11, 13, 15, 17, 18, 21, 22, 26, 28, 29, 32, 33, 36, 38, 40, 41, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Kano et. al. US Patent No. 5705096.**

**Regarding claim 1**, the reference teaches a method for forming a non-rubbing alignment film comprising the steps of providing a substrate, forming a polymer film on the substrate, pressing a surface of a molecular imprint template onto the polymer film, wherein the surface of the molecular imprint template has a plurality of micro-slots; and removing the molecular imprint template. Fig. 5 of the refence shows the polymer film (element 25), formed on a substrate (element 12), and it shows a molecular imprint template (element 52) with a plurality of micro-slots prior to pressing. Fig. 3 shows the alignment film following pressing.

**Regarding claim 17**, the reference teaches a method for forming a non-rubbing alignment film comprising the steps of providing a substrate, forming a polymer film on the substrate, pressing a surface of a molecular imprint template onto the polymer film, wherein the surface of the molecular imprint template has a plurality of micro-slots; and removing the molecular imprint template. Fig. 5 of the refence shows the polymer film

(element 25), formed on a substrate (element 12), and it shows a molecular imprint template (element 52) with a plurality of micro-slots prior to pressing. Fig. 3 shows the alignment film following pressing. Regarding the curing process fig. 6 shows the relative intensities of the light irradiated to cure the polymer.

**Regarding claim 28**, the reference teaches a method of forming a non-rubbing alignment film of a liquid crystal display, comprising forming a polymer film on a substrate and forming a plurality of grooves on the polymer film by a molecular imprint process. Fig. 5 of the reference shows the polymer film (element 25), formed on a substrate (element 12), and it shows a molecular imprint template (element 52) with a plurality of micro-slots prior to pressing. Fig. 3 shows the alignment film following pressing which forms a plurality of grooves on the polymer film. Regarding the curing process fig. 6 shows the relative intensities of the light irradiated to cure the polymer and also states a UV curing process (see column 4 lines 39-44).

**Regarding claims 2, 18, and 29**, the reference teaches a glass substrate (see column 5 lines 34-40).

**Regarding claims 5, 21, and 32**, the reference teaches an alignment film (fig. 1 element 24) on the TFT substrate (see fig. 1 element 12).

**Regarding claims 6, 22, and 33**, the reference teaches an alignment film (fig. 1 element 24) formed on the color filter substrate (fig. 1 element 14).

**Regarding claim 9 and 36**, the reference teaches UV curing after the polymer film is formed on the substrate (see column 4 lines 39-44).

**Regarding claims 11 and 26**, the reference teaches the curing process as a UV irradiation process (see column 4 lines 39-44).

**Regarding claim 13**, the reference teaches the UV curing after the pressing the surface of surface of the molecular imprint template onto the polymer film (see column 4 lines 39-44). The reference states the mold impression and irradiation employed "together," this is interpreted as after the mold has been pressed and prior to removal of the mold.

**Regarding claim 15 and 38**, the reference teaches a UV curing process (see column 4 lines 39-44).

**Regarding claim 40**, the reference teaches the imprinting process comprising steps of:

Pressing a surface of a molecular imprint template onto the polymer film, wherein the surface of the molecular imprint template has a plurality of micro-slots; and removing tot the molecular imprint template onto the polymer film. Fig. 5 of the refence shows the polymer film (element 25), formed on a substrate (element 12), and it shows a molecular imprint template (element 52) with a plurality of micro-slots prior to pressing. Fig. 3 shows the alignment film following pressing.

**Regarding claim 41**, the reference teaches the UV curing after the pressing the surface of surface of the molecular imprint template onto the polymer film (see column 4 lines 39-44). The reference states the mold impression and irradiation employed "together," this is interpreted as after the mold has been pressed and prior to removal of the mold.

**Regarding claim 43**, the reference teaches a UV curing process (see column 4 lines 39-44).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 10, 12, 14, 16, 25, 27, 37, 39, 42, and 44 rejected under 35 U.S.C.**

**103(a) as being unpatentable over Kano et. al and in view of Koike et. al. US**

**Patent Number 5629056.**

Kano teaches all the limitations of claims 10, 12, 14, 16, 25, 27, 37, 39, 42 and 44 except, a heat curing process used to cure the alignment film which temperatures used are below 200 degrees Celsius. Koike teaches a heat curing process to cure an alignment film using temperatures up to 200 degrees (see Koike column 20 lines 5-15). A heat curing process has advantages such as not requiring an a direct optical path to the cured material, and does not require use of a UV emitting light-source. A temperature of 200 degrees or lower would not be hot enough interfere with items that do not need to be heat treated. Therefore, at the time of the invention, it would have been obvious to use a heat curing process to allow for curing without a UV light source or a direct optical path to the cured material and it would also be obvious to use a temperature of below 200 degrees to avoid damage to other materials in the device.

**Claims 7, 23 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano and in view of Katsumura et. al. US Patent No. 6753048.**

Kano teaches all the limitations of claims 7, 23, and 34 except a polyimide polymer film. Katsumura teaches a polyimide film (column 1 lines 43-45) to allow for heat curing (baking). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a polyimide film to allow for heat curing techniques.

**Claims 8, 24, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano and in view of Perettie et. al. US Patent No. 5540997.**

Kano teaches all the limitations of claims 8, 24, and 35 except a polyamide polymer film. Perettie discloses polyamide films as suitable for providing orientation and can be cured at below 250 degrees. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a polyamide film to provide lower temperature curing (column 1 lines 50-52).

**Claims 3, 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over above and in view of Dohi et. a. US Patent No. 6429920.**

Kano teaches all the limitations of claims 3, 19 and 30 except a plastic substrate. Dohi discloses a plastic substrate, which is lighter and more impact resistant than traditional substrates (column 10 lines 52-54). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a plastic substrate to gain a lighter and more impact resistant substrate.

**Claims 4, 20 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano and in view of Janssen et. al. US Patent No. 6693694.**

Kano teaches all the limitations of claims 4, 20, and 31, except a silicon substrate. Janssen teaches a silicon substrate to integrate the electrodes, switches and storage capacitors to provide high pixel density for higher resolutions (col 1 lines 30-36. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a silicon substrate to provide a higher pixel density for a higher resolution display.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**ROBERT H. KIM**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

Phu Vu